PERFORATION IN ENTERIC FEVER; ITS SURGICAL TREATMENT.

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There is no complication of enteric fever more dreaded by the physician than perforation. It occurs in about two per cent. of all cases. Its most frequent causes are improper diet, distension of the bowel from any cause, or too early and sudden movements of the patient. It is present as often in mild cases as in those which are severe and is most frequently met with in young adult males. As is well known, its recognition is not difficult. Its occurrence is announced by the advent in the course of the fever of sudden severe pain in the right iliac region, accompanied by symptoms of collapse, this being soon followed by the symptoms of peritonitis, and almost invariably on the second or third day the case terminates fatally. The site of the perforation is generally found to be in the last twelve inches of the ileum.

The late Prof. Loomis, in the course of the discussion on Dr. Reeve's paper on typhoid fever, read before the Association of American Physicians in 1890, said: "I do not remember to have seen a single recovery after there were unmistakable evidences of intestinal perforation. Recovery from a localized peritonitis, complicating typhoid fever, is not uncommon, but when characteristic symptoms of intestinal perforation are present, in my experience a fatal issue soon follows." With such evidence and our own individual experience of the hopelessness of the patient's condition when reliance is placed on Nature's efforts at

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repair, (spontaneous recovery resulting less frequently in this than in other forms of perforation, on account of the central location of the injury), it is not to be wondered at that with the constant reports of successful operations for the relief of perforation from other causes and in other locations, the physician should turn toward the surgeon, asking if among the good tidings modern surgery is proclaiming to many sufferers there is not some message of hope for the unfortunates whose condition we are considering, who seem at present to be condemned to an untimely death, and by whose bedsides he has so often stood with folded hands, helpless to aid them. Said Dr. Bontecou, of Troy, New York, the first in this country to operate for this form of perforation, in the course of the discussion on Dr. J. Ewing Mears' paper, read before the American Surgical Association in 1888: "I claim that when this mortal accident occurs laparotomy cannot impair, but may improve the patient's chance of recovery." Said Dr. Van Hook, in his admirable paper reporting the first successful case of operation for perforation occurring in the course of a closely diagnosticated case of enteric fever: "It is strange, nevertheless, that a question involving the only promise of help for five and seven-tenths per cent. of all those dying of typhoid fever should not have excited even more interest and discussion." Dr. Robert Abbe, in a recent report of a case, also successfully operated upon, (Medical Record, January 5th, 1895), said: "Why one class of cases should be left to die, while we operate on all appendicitis cases, when perforation can be recognized, does not appear." Again, said Prof. Kussmaul, of Strasburg, some time since: "Granted that the chance of a successful issue is heavily against you, that the patient is in the midst or at the end of a long sickness, that his tissues are in the worst state to stand the injuries of the surgeon's knife, that the lesions of the gut may be extensive, that the vital forces are at the lowest ebb, no one yet has hesitated to perform tracheotomy in the laryngeal complications of enteric fever which require it to save life, for these reasons."

With this testimony and much more that could be offered in favor of operation, one cannot help being surprised in looking over the literature of this subject, to find on record only twenty-four cases, of which six recovered. If those cases are rejected in which there is doubt of the diagnosis, we find only seventeen cases where an attempt has been made to relieve the patient's desperate strait by surgical means. Of these three recovered. Allusion has already been made to the first and third, and the second recovery belongs to Dr. Netschajau, of St. Petersburgh, (Medical News, Dec. 1st, 1894). The writer's opinion, formed after a careful study of the subject and from a considerable experience in abdominal operations when the patients were septic and consequently in bad condition, is that the physician on taking charge of a case of enteric fever should prepare himself to act with promptness on the occurrence of perforation. It is well to remember that while there should be the least delay possible, these patients rarely die in the first state of collapse and that this condition is not one favorable for operation. The patient, as soon as the diagnosis is made, should be stimulated by means of strychnia and morphia. If the patient rallies then the operation should be performed without loss of time and under favorable conditions there is a fair chance of success, especially in those cases in which the course of the fever has been mild or where the perforation has occurred during convalescence. Of course, if the patient refused to respond to the stimulation, the operation would be useless. Dr. Abbe, in the paper previously alluded to, said: "Very essential do I consider it that the surgeon should never be so hasty in getting at his work that he enters upon it handicapped by poor assistance, poor light or poor arrangements for irrigation." While the patient is being stimulated, the necessary arrangements for the operation can be made. The writer's experience has shown him that a laparotomy, although the personal care and trouble is greater, can be even more safely performed in a farm-house with

good surroundings than in a city hospital. All that is requisite is a clean light room, without carpet or furniture, except two or three wooden tables, an abundant supply of hot and cold soft spring water which has been sterilized by boiling, and a dozen towels.

Patients of this class do not bear anesthesis well and in fact the great danger comes from this source. With a closed inhaler of the Clover type, or Dawbarn's modification, which the writer has used with satisfaction for some years, patients can be readily anesthetized and kept unconscious for an hour with four ounces of ether. The incision should usually be in the median line between the umbilicus and the pubes, rather than over the site of the pain, true as this guide generally is to the point of perforation, for from this point one has the abdominal and pelvic contents under command. Search should first be made in the pelvis because collapsed small gut and extravasated matter tend to fall into this cavity, as has been pointed out by Bland Sutton, (Clinical Society Reports, London, March 9th, 1894). If the inflamed and perforated intestine is not found here the cecum should be sought, and the last foot of ileum is then easily located and looked over. When the injured point is found, the perforation should be closed if possible by Lembert's or Halsted's mattrass sutures and should then be covered by an omental graft. The sutures for closing the abdominal wound should now be placed, all the layers of this wall being included. These sutures should be of silk worm gut. When this has been accomplished the abdominal cavity should be freely irrigated with a hot saline solution, (half a dram to the pint,) about two gallons being used, the temperature of the water being from one hundred and ten to one hundred and fifteen degrees Fahrenheit, according to the degree of shock the patient is suffering from and in most cases the abdominal cavity should be left filled with the irrigating fluid, and the sutures already passed should be drawn and tied. If effort has been made by nature to shut off

the perforated point by adhesions before they are disturbed the general cavity should be shut off by sponges or gauze. In some cases all that would be advisable to do would be to draw the perforated intestine into the wound and after free irrigation of the abdominal cavity it should be stitched to the wound or surrounded by gauze, further procedure being delayed till a future occasion. In a still more desperate case, one occurring earlier, when the fever was at its height, or in which the fever had run a severer course, one might with the aid of cocaine anesthesia rapidly open the abdominal cavity over the site of greatest pain, and after irrigating, surround the perforated intestine by gauze, thus shutting off the general cavity, favoring the formation of adhesions and securing drainage, as has been suggested by my friend, Dr. E. D. Ferguson, of Troy, N. Y. In one of the successful cases previously alluded to, Netschajaus, a portion of the perforated intestine was excised, and now that an anastomosis by means of the Murphy button can be easily effected in five minutes, it may in favorable cases, especially in those in which a number of ulcers are near together and in a dangerous condition, be quicker and wiser to excise the diseased intestine. The decision as to the best procedure must be determined by the circumstances of each case and by each operator for himself. It is here that skill and experience count for the most. Personally, I favor closing the abdominal wound after free irrigation, leaving the abdominal cavity full of the hot fluid, as I know from many past experiences how much this procedure does to lessen shock and to prevent the danger of septic infection of the peritoneum. If at this time shock were still great it would be wise to follow Dr. Abbe's advice to administer an enema of black coffee and whiskey on the operating table.

In conclusion, may we not all agree that in many cases of perforation occurring in the course of enteric fever an attempt should be made to save the patient by operation. The patient should be freely stimulated on the occurrence of this accident

and careful preparation ought at once to be made for the operation. Time should not be purchased at the expense of experience, light or competent assistance. The smallest possible amount of ether should be used. The surgical procedure should be the least that offers hope of recovery to the patient. We must remember that the chance of a successful termination of our work increases with every dram of ether and every minute saved. Finally, the physician must realize more fully that the surgeon is his assistant and not his rival and must give him as well as the patient a fighting chance by calling him early and not after several days of hesitation which has too often been the case in this and other forms of intra-abdominal disease.

Under favorable conditions I am convinced that modern surgery has a remedy to offer these patients and that in the near future the mortality from perforation occurring in the course of enteric fever will be markedly lessened. The medical text book of the future will not state, as does Loomis, "When perforation of the intestine occurs the case may be considered hopeless."

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